

REMARKS

It is noted that the claim amendments herein are intended solely to more particularly point out the present invention for the Examiner, and not for distinguishing over the prior art or the statutory requirements directed to patentability.

It is further noted that, notwithstanding any claim amendments made herein, Applicant's intent is to encompass equivalents of all claim elements, even if amended herein or later during prosecution.

Claims 1 and 3-22 are all of the claims pending in the present Application.

The Examiner objects to claims 3, 4, 7, 20, and 22 for informalities. Applicants believe the above claim amendments remedy the Examiner's concerns and respectfully request that these objections be withdrawn. It is noted that no amendment was necessary to place the period at the end of claim 22, since this period automatically carried over from the last version when the wording struck out was removed.

Claims 5, 9-12, 14-17, and 22 stand rejected under 35 USC §102(b) as anticipated by US Patent 6,331,063 to Kamada et al. Claims 1, 3-9, 12, 13, 19, and 20 stand rejected under 35 USC §103(a) as unpatentable over Kamada, further in view of US Patent 5,623,181 to Suehiro et al. Claims 18 and 21 stand rejected under 35 USC §103(a) as unpatentable over Kamada/Suehiro, further in view of US Patent 5,183,752 to Singer et al.

These rejections are respectfully traversed in view of the following discussion.

I. THE CLAIMED INVENTION

As described and claimed, for example by claim 1, the present invention is directed to a light-emitting diode including a light-emitting element. A lead assembly supplies electrical power to the light-emitting element. A reflection mirror is provided in an opposing relation to the light-emitting surface of the light-emitting element. A light-transmissible material seals the light-emitting element, a part of the lead assembly, and the reflection mirror. A radiation surface radiates light reflected on the reflection mirror to the outside.

The reflection mirror includes a metal mirror which is obtained by processing a metal plate to give it a concave shape or which is obtained by mirror-surface-treating the concave surface of the metal mirror formed by the processing of the metal plate. The radiation surface

is formed on the light-transmissible material at its surface at the rear of the light-emitting element and a through-hole is formed through the reflection mirror to serve as an air escape path during an assembly of the light-emitting diode.

An advantage of the present invention is that it provides a method of mass production for LEDs, using conventional metal-forming techniques to pre-form the mirror. The metal plate provides a resistance to heat deformation during fabrication of the device as well as during the operation of the device.

The prior art references of record fail to teach or suggest using a metal plate as the starting point for an LED with a reflector or using a mass production technique for pre-forming a thin metal plate as the beginning process in mass production of an LED.

II. THE PRIOR ART REJECTIONS

The Examiner alleges that Kamada anticipates the present invention as defined by claims 5, 9-12, 14-17, and 22 and, when combined with Suehiro, renders obvious the present invention as defined by claims 1, 3-9, 12, 13, 19, and 20, and that Kamada/Suehiro, when combined with Singer, renders obvious the present invention as defined by claims 18 and 21.

Applicants respectfully disagree.

First, it is noted that, in the evaluation of the claim language and the interpretation of the prior art reference, the Examiner's interpretation is confined to the plain meaning, as one of ordinary skill in the art would interpret the language.

Second, relative to the anticipation rejection based on Kamada, anticipation requires that the reference must teach or inherently contain all of the claim limitations within the four corners.

Therefore, turning to the rejection for claims 5, 9-12, 14-17, and 22, the Examiner is understood as relying on the embodiment in Kamada shown in Figure 1.

However, Applicants submit that the Examiner is incorrect in referring to substrate 10 as being a metal plate, since the description at line 41 of column 3 through line 27 of column 4 clearly states that the substrate 10 is formed using an injection molding and the dents 11a then formed by depositing metal via a metal plating process. In the rejection for claim 9, the Examiner points to lines 2-4 of column 15 as indicating a pre-formed metal plate. However,

this description refers exclusively to the heat emitter 16A shown in the embodiment of Figure 26, which is a luminaire embodiment that is an entirely different configuration from that shown in Figure 1 in that a single LED element 1 is installed in each luminaire cavity 16B, in contrast to the three LED elements 1 shown in Figure 1.

Since the Examiner is not entitled to use the claims as a roadmap to re-design the various embodiments shown in the reference, Kamada fails to show all the elements of the combination of elements defined in the claims. Nor does the Examiner provide any reason why one of ordinary skill in the art would want to modify Figure 1 of Kamada to use the heat emitter 16A of Figure 26.

Hence, turning to the clear language of the claim, there is no teaching or suggestion in Kamada of: " ... a metal plate, pre-formed into a concave shape, that forms a reflection mirror, said reflection mirror provided in an opposing relation to the light-emitting surface of said light-emitting element, said light-emitting element being mounted a predetermined distance from a reflective surface of said reflection mirror ... wherein said reflection mirror comprises a metal mirror which is obtained by combining a plurality of metal plate portions to give the assembly a concave shape or which is obtained by mirror-surface-treating the concave surface of said metal mirror. ", as required by claim 5. Claim 22 has similar language.

Similarly, relative to claim 9, there is no teaching or suggestion in Kamada of: "... a concave reflection mirror provided in an opposing relation to the light-emitting surface of said light-emitting element, light emitted by said light-emitting element being reflected on said reflection mirror, to be radiated to the outside, wherein said reflection mirror comprises a mirror which is obtained by processing a metal plate to give it a concave shape".

Relative to the rejection for claim 15, the description at line 61 of column 3 refers to the deposited metal, not to a preformed metal plate.

Relative to the rejection for claim 16, the description at line 49 of column 8 refers to an aluminum film, not a preformed metal plate.

Relative to the rejections for claims 10, 14, and 17, the Examiner errs, as a matter of law, in simply declining to provide patentable weight to the process language. As clearly stated in MPEP §2113:

• *"The Patent Office bears a lesser burden of proof in making out a case of prima facie*

obviousness for product-by-process claims because of their peculiar nature" than when a product is claimed in the conventional fashion. [cites omitted] Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product.

This instruction is quite different from simply declining to provide patentable weight to the process wording in the claim. That is, although the Examiner's initial burden might be less, the burden is not reduced to zero, as the Examiner seems to assert.

Third, relative to the rejection under 35 USC §103(a) for claims 1, 3-9, 12, 13, 19, and 20, the Examiner concedes that Suehiro fails to teach or suggest a metal plate pre-formed into a concave shape or a through hole. To overcome this deficiency, the Examiner relies on Kamada. As best understood, the Examiner alleges that one of ordinary skill in the art would have been motivated to modify Suehiro to incorporate the metal plate (presumably the heat emitter 16A shown in Figure 26 of Kamada) "... *in order to reduce manufacturing times, materials and inaccuracies with reflective film deposits*". The Examiner further alleges that one of ordinary skill in the art would have been motivated to modify Suehiro "... *to form a through-hole within the reflection mirror in order to provide an escape for the heat generated by the LED*".

To begin with, it is pointed out that the rejection currently of record fails to meet the initial burden of a *prima facie* rejection, as clearly stated by the evaluation guidelines in the MPEP.

First, it is pointed out that MPEP §2141.02 clearly states the following very basic evaluation guideline: "*In determining the differences between the prior art and the claims, the question under 35 U.S.C.103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious*" (emphasis in MPEP itself).

This guideline reflects the well established concept in patentability evaluation that a new invention may "merely" be a new and different combination of known elements.

Second, it is pointed out that MPEP §2143.01 clearly states a second guideline: "*The mere fact that references can be combined or modified does not render the resultant*

combination obvious unless the prior art also suggests the desirability of the combination” (emphasis in MPEP itself).

Along these lines, Judge Rader wrote in the recent Federal Circuit Court of Appeals holding in *Ruiz v. A.B. Chance Co.*, Federal Cir., No. 03-1333, January 29, 2004:

"In making the assessment of differences, section 103 specifically requires consideration of the claimed invention "as a whole." Inventions typically are new combinations of existing principles or features. Env'tl. Designs, Ltd. v. Union Oil Co., 713 F.2d 693, 698 (Fed. Cir. 1983) (noting that "virtually all [inventions] are combinations of old elements."). The "as a whole" instruction in title 35 prevents evaluation of the invention part by part. Without this important requirement, an obviousness assessment might break an invention into its component parts (A + B + C), then find a prior art reference containing A, another containing B, and another containing C, and on that basis alone declare the invention obvious. This form of hindsight reasoning, using the invention as a roadmap to find its prior art components, would discount the value of combining various existing features or principles in a new way to achieve a new result - often the very definition of invention." (Emphasis by Applicants).

Although the holding in that case left undisturbed, under the "clear error" standard of review, the conclusion of the District Court that the prior art references were properly combinable, it specifically explained that it declined to reverse this conclusion because "... the two references address precisely the same problem ... " (emphasis by Applicants)

This aspect of the *Ruiz* holding, in which precisely the same problem is being addressed by both references, is not present in the Kamada and Suehiro references used in the prior art evaluation of the present Application. Kamada addresses the problem of light mixture while keeping the LED luminaire as thin as possible (e.g., a single layer of LEDs in the luminaire). In contrast, Suehiro addresses the problem of light mixture while maintaining light emission to be in the same plane to the exterior. Indeed, Suehiro uses a multi-layer LED configuration, which contradicts the design concept of Kamada for maintaining the product thin.

Third, it is pointed out that MPEP §2143.01 clearly states a third guideline:

"If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious."

Applicants submit that modifying the multi-layer LED configuration of Suehiro in

accordance with the single-layer LED configuration would change the principle of operation and is, therefore, precluded by the above-recited guideline.

It is also noted that the rationale of the rejection currently of record is merely circular reasoning (i.e., a conclusory statement of the result), as follows:

"The motivation to modify reference A to incorporate missing element B (found in reference C) is because one would thereby obtain the benefit of having incorporated missing element B".

Applicant submits that avoidance of this circular reasoning is exactly the reason for requiring that obviousness be based on an objective standard that the prior art references themselves make the suggestion, rather than merely a conclusory statement that one would be motivated to make the combination in order to get the benefit of having made the combination.

Using the approach of the current rejection, everything would be rendered obvious, since any modification would become obvious because the modification would provide the benefit of having made the modification.

Finally, as pointed out in the previous Amendment, Suehiro has no need for an air escape hole. Applicants additionally submit that a heat escape hole in the metal would also require a heat escape hole in the remainder of the totally enclosed structure of Suehiro, and that such modification would be a basic change of design clearly instituted by improper hindsight.

The Examiner relies upon Singer for demonstrating a UV LED, but this reference does not overcome the deficiencies identified above for Kamada and/or Suehiro.

For the reasons stated above, the claimed invention is fully patentable over the cited references.

Further, the other prior art of record has been reviewed, but it too, even in combination with the Suehiro, Kamada, or Singer, fails to teach or suggest the claimed invention.

III. FORMAL MATTERS AND CONCLUSION

Applicants gratefully acknowledge the Examiner's indication that the priority documents have now been received and entered into the record.

In view of the foregoing, Applicant submits that claims 1 and 3-22, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,



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